

Application No.: 10/751,480

Docket No.: 2038-315

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-3. (canceled)

4. (currently amended) A process of making disposable diapers each having inner and outer surfaces adapted to face toward and away from a wearer, respectively, front and rear ends extending in a transverse direction and a pair of side edges extending in a longitudinal direction,

a front waist region, a rear waist region and a crotch region extending between said waist regions, and

one of said front and rear waist regions of said outer surface being provided in vicinities of said side edges with folded tape fasteners which are unfoldable in said transverse direction,

said process comprising the steps of:

feeding continuously a web in a machine direction which defines the transverse direction of the diapers to be made, wherein said web comprises backsheets of the diapers arranged side-by side and has a surface defining the outer surface of the diapers ;

providing tape fastener members each having, in said machine direction, longitudinally opposite end portions and an intermediate portion extending between said opposite end portions, said opposite end portions being folded in a Z-shape or an inverted Z-shape, top sections of said Z-shape and said inverted Z-shape being coated on undersides thereof with a first adhesive and bottom sections of said Z-shape and said inverted Z-shape being coated on undersides thereof with a second adhesive;

bonding said tape fastener members by means of said second adhesive to said surface of said web in said one of said front and rear waist regions of said backsheets of the diapers so that

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said tape fastener members straddle cutting lines which are located between adjacent ones of the diapers and define the side edges of the diapers; and

cutting said web together with said tape fastener members along said cutting lines to separate the individual diapers from said web;

said [[The]] process according to claim 1, further comprising, prior to said bonding,

folding said web along a line bisecting a width of said web so that a first region of said web destined to form the front waist regions of the diapers and a second region of said web destined to form the rear waist regions of the diapers overlay each other; and

joining the folded first and second regions together in joining zones on opposite sides of the cutting lines destined to define said side edges of said diapers;

wherein, in said bonding, said tape fastener members are bonded to said web by means of said second adhesive on opposite sides of respective said joining zones so as to straddle respective said joining zones.

5. (previously presented) The process of claim 4, wherein the diapers being cut from said web are pant diapers.

6-7. (canceled)

8. (currently amended) A process of making disposable diapers each having inner and outer surfaces adapted to face toward and away from a wearer, respectively, front and rear ends extending in a transverse direction and a pair of side edges extending in a longitudinal direction,

a front waist region, a rear waist region and a crotch region extending between said waist regions, and

one of said front and rear waist regions of said outer surface being provided in vicinities of said side edges with folded tape fasteners which are unfoldable in said transverse direction,

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said process comprising the steps of:

feeding continuously a web in a machine direction which defines the transverse direction of the diapers to be made, wherein said web comprises backsheets of the diapers arranged side-by-side and has a surface defining the outer surface of the diapers ;

providing tape fastener members each having, in said machine direction, longitudinally opposite end portions and an intermediate portion extending between said opposite end portions, said opposite end portions being folded in a Z-shape or an inverted Z-shape, top sections of said Z-shape and said inverted Z-shape being coated on undersides thereof with a first adhesive and bottom sections of said Z-shape and said inverted Z-shape being coated on undersides thereof with a second adhesive;

bonding said tape fastener members by means of said second adhesive to said surface of said web in said one of said front and rear waist regions of said backsheets of the diapers so that said tape fastener members straddle cutting lines which are located between adjacent ones of the diapers and define the side edges of the diapers; and

cutting said web together with said tape fastener members along said cutting lines to separate the individual diapers from said web;

The process of claim 1, wherein, in each of said tape fastener members being provided in said providing,

each of the Z-shape and inverted Z-shape further comprises, in addition to the top and bottom sections, a middle section located between the top and bottom sections; and

said first adhesive releasably bonds the top section to the middle section at a first end of the middle section, and permanently bonds the top section to the middle section at an opposite, second end of the middle section.

9. (previously presented) The process of claim 8, wherein, in each of said tape fastener members being provided in said providing,

the middle section is coated on a underside thereof with a third adhesive; and

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said third adhesive releasably bonds the middle section to the bottom section at the second end of the middle section, and permanently bonds the middle section to the bottom section at the first end of the middle section.

10. (previously presented) The process of claim 9, wherein, in each of said tape fastener members being provided in said providing,

the second end of the middle section comprises a folded portion which has the third adhesive facing upwardly and being permanently bonded to the first adhesive of the top section; and

the bottom section comprises, in a region corresponding to the first end of the middle section, another folded portion which has the second adhesive facing upwardly and being permanently bonded to the third adhesive of the middle section.

11. (currently amended) A process of making disposable diapers each having inner and outer surfaces adapted to face toward and away from a wearer, respectively, front and rear ends extending in a transverse direction and a pair of side edges extending in a longitudinal direction,

a front waist region, a rear waist region and a crotch region extending between said waist regions, and

one of said front and rear waist regions of said outer surface being provided in vicinities of said side edges with folded tape fasteners which are unfoldable in said transverse direction,

said process comprising the steps of:

feeding continuously a web in a machine direction which defines the transverse direction of the diapers to be made, wherein said web comprises backsheets of the diapers arranged side-by side and has a surface defining the outer surface of the diapers ;

providing tape fastener members each having, in said machine direction, longitudinally opposite end portions and an intermediate portion extending between said opposite end portions, said opposite end portions being folded in a Z-shape or an inverted Z-shape, top sections of said

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Z-shape and said inverted Z-shape being coated on undersides thereof with a first adhesive and bottom sections of said Z-shape and said inverted Z-shape being coated on undersides thereof with a second adhesive;

bonding said tape fastener members by means of said second adhesive to said surface of said web in said one of said front and rear waist regions of said backsheets of the diapers so that said tape fastener members straddle cutting lines which are located between adjacent ones of the diapers and define the side edges of the diapers; and

cutting said web together with said tape fastener members along said cutting lines to separate the individual diapers from said web;

The process of claim 1, wherein said bonding comprises permanently bonding the tape fastener members to said web.

12. (previously presented) A process of making disposable diapers, said process comprising:

feeding continuously a web in a machine direction, wherein said web comprises backsheets of a plurality of diapers arranged side-by side with intended cutting lines located between adjacent said diapers, and said web further has a surface defining an outer surface of the diapers;

providing tape fastener members each having, in said machine direction, longitudinally opposite end portions and an intermediate portion extending between said opposite end portions, said opposite end portions respectively comprising two folded tape fasteners for two adjacent said diapers on said web;

bonding the opposite end portions of said tape fastener members to said surface of said web, wherein the intermediate portion of each of said tape fastener members extends across one of said intended cutting lines; and

simultaneously cutting said web and the tape fastener members along said cutting lines to obtain the individual diapers having the folded tape fasteners.

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13. (previously presented) The process according to claim 12, wherein said web being continuously fed comprises a first layer defining the backsheets and the outer surface of the diapers, a second layer defining a topsheet and the inner surface of the diapers, and a plurality of liquid-absorbent cores arranged intermittently in the machine direction between the first and second layers.

14. (previously presented) The process according to claim 12, further comprising, prior to said bonding,

folding said web along a line bisecting a width of said web so that a first region of said web intended to form front waist regions of the diapers and a second region of said web intended to form rear waist regions of the diapers overlay each other; and

joining the folded first and second regions together in joining zones on opposite sides of the cutting lines intended to define longitudinal side edges of the diapers;

wherein, in said bonding, the opposite end portions of said tape fastener members are bonded to said web on opposite sides of respective said joining zones and the intermediate portions of said tape fastener members straddle respective said joining zones.

15. (previously presented) The process according to claim 12, wherein said bonding comprises permanently bonding the opposite end portions of the tape fastener members to said web.

16. (previously presented) The process of claim 12, wherein, in each of said tape fastener members being provided in said providing,

the opposite end portions are folded in a Z-shape or an inverted Z-shape, each said Z-shape or inverted Z-shape comprising a top section, a bottom section that is bonded to said web in said bonding, and a middle section located between the top and bottom sections; and

the intermediate portion is made integrally with and connects the top sections of the Z-shape and inverted Z-shape of the opposite end portions.

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17. (previously presented) The process of claim 12, wherein, in each of said tape fastener members being provided in said providing,

the opposite end portions are folded in a Z-shape or an inverted Z-shape, each said Z-shape or inverted Z-shape comprising a top section, a bottom section that is bonded to said web in said bonding, and a middle section located between the top and bottom sections; and

the intermediate portion is made integrally with and connects the bottom sections of the Z-shape and inverted Z-shape of the opposite end portions.

18. (previously presented) The process of claim 12, wherein, in each of said tape fastener members being provided in said providing,

the opposite end portions are folded in a Z-shape or an inverted Z-shape, each said Z-shape or inverted Z-shape comprising a top section, a bottom section that is bonded to said web in said bonding, and a middle section located between the top and bottom sections; and

the top section is releasably bonded to the middle section at a first end of the middle section, and permanently bonded to the middle section at an opposite, second end of the middle section.

19. (previously presented) The process of claim 18, wherein, in each of said tape fastener members being provided in said providing,

the middle section is releasably bonded to the bottom section at the second end of the middle section, and permanently bonded the bottom section at the first end of the middle section.

20. (previously presented) The process of claim 19, wherein, in each of said tape fastener members being provided in said providing,

the top, bottom and middle sections are coated on undersides thereof with first, second and third adhesives, respectively, said second adhesive bonding the respective Z-shape or inverted Z-shape to said web in said bonding;

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the second end of the middle section comprises a folded portion which has the third adhesive facing upwardly and being permanently bonded to the first adhesive of the top section; and

the bottom section comprises, in a region corresponding to the first end of the middle section, another folded portion which has the second adhesive facing upwardly and being permanently bonded to the third adhesive of the middle section.

21. (previously presented) A process of making disposable diapers each having inner and outer surfaces adapted to face toward and away from a wearer, respectively, front and rear ends extending in a transverse direction and a pair of side edges extending in a longitudinal direction,

a front waist region, a rear waist region and a crotch region extending between said waist regions, and

one of said front and rear waist regions of said outer surface being provided in vicinities of said side edges with folded tape fasteners which are unfoldable in said transverse direction,

said process comprising the steps of:

feeding continuously a web in a machine direction which defines the transverse direction of the diapers to be made, wherein said web comprises backsheets of the diapers arranged side-by-side and has a surface defining the outer surface of the diapers;

providing tape fastener members each having, in said machine direction, longitudinally opposite end portions and an intermediate portion extending between said opposite end portions, said opposite end portions being folded in a Z-shape or an inverted Z-shape, top sections of said Z-shape and said inverted Z-shape being coated on undersides thereof with a first adhesive and bottom sections of said Z-shape and said inverted Z-shape being coated on undersides thereof with a second adhesive;

bonding said tape fastener members by means of said second adhesive to said surface of said web in said one of said front and rear waist regions of said backsheets of the diapers so that said tape fastener members straddle cutting lines which are located between adjacent ones of the diapers and define the side edges of the diapers; and

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cutting said web and said tape fastener members along said cutting lines to separate the individual diapers from said web;

said process further comprising, prior to said bonding,

folding said web along a line bisecting a width of said web so that a first region of said web destined to form the front waist regions of the diapers and a second region of said web destined to form the rear waist regions of the diapers overlay each other; and

joining the folded first and second regions together in joining zones on opposite sides of the cutting lines destined to define said side edges of said diapers;

wherein, in said bonding, said tape fastener members are bonded to said web by means of said second adhesive on opposite sides of respective said joining zones so as to straddle respective said joining zones.

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